

ABSTRACT OF THE DISCLOSURE

The present invention relates to an apparatus for conducting a variety of assays for the determination of analytes in liquid samples, and relates to the methods for such assays. In 5 particular, the invention relates to a single-use cartridge designed to be adaptable to a variety of real-time assay protocols, preferably assays for the determination of analytes in biological samples using immunosensors or other ligand/ligand receptor-based biosensor embodiments. The cartridge provides novel features for processing a metered portion of a sample, for precise and flexible control of the movement of a sample or second fluid within the cartridge, for the 10 amending of solutions with additional compounds during an assay, and for the construction of immunosensors capable of adaptation to diverse analyte measurements. The disclosed device and methods of use enjoy substantial benefits over the prior art, including simplicity of use by an operator, rapid *in situ* determinations of one or more analytes, and single-use methodology that minimizes the risk of contamination of both operator and patient. The disclosed invention is 15 adaptable to the point-of-care clinical diagnostic field, including use in accident sites, emergency rooms, surgery, nursing homes, intensive care units, and non-medical environments.

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